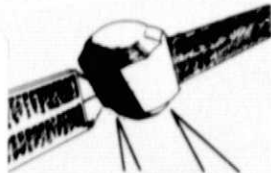


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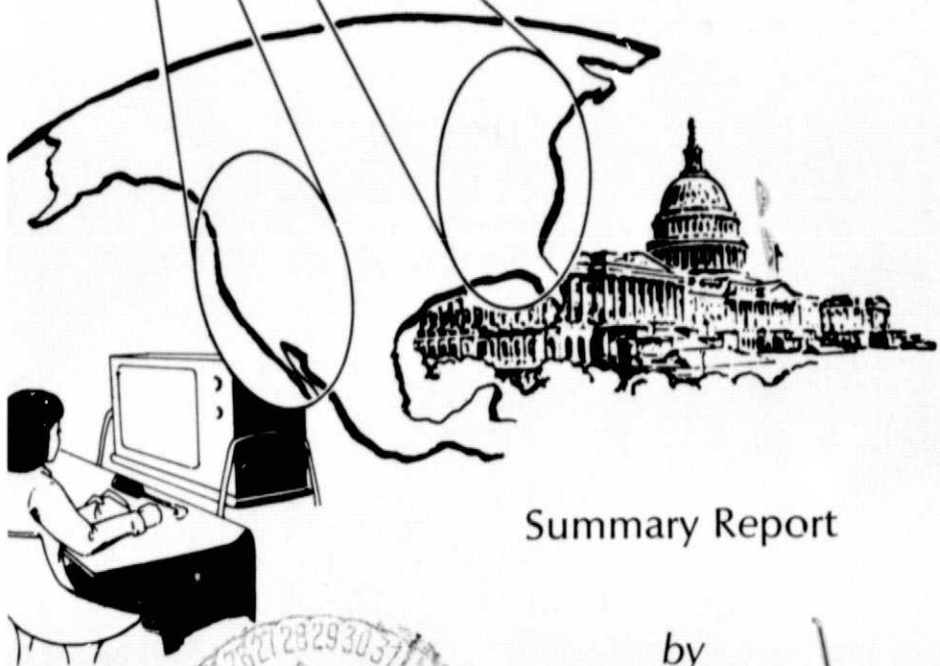
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NSG-3130



VIDEOCONFERENCING VIA SATELLITE:

Opening Congress to the People



Summary Report

by

Fred B. Wood
Vary T. Coates
Robert L. Chartrand
Richard F. Ericson

Foreword by Participating
U.S. Senators and Representatives

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THE
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Program of Policy Studies in Science and Technology / Washington, D.C. 20052

VIDEOCONFERENCING VIA SATELLITE:

Opening Congress to the People

Summary Report

Prepared by the

Program of Policy Studies in Science and Technology
The George Washington University
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Program of Policy Studies in Science and Technology

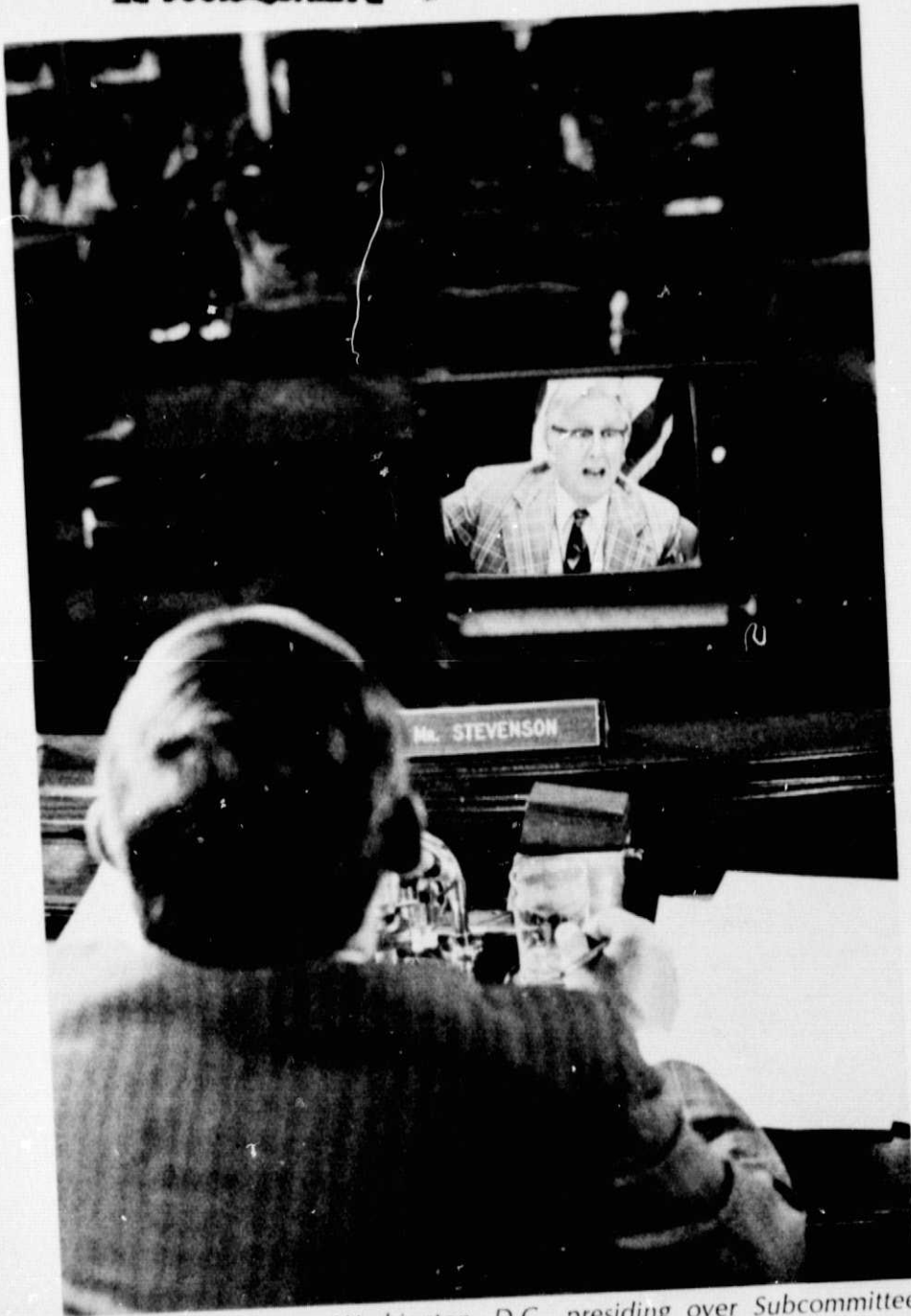
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Organizational Cybernetics

February 1978

**ORIGINATOR IS
OF DOOMSDAY**



Senator Stevenson in Washington, D.C., presiding over Subcommittee hearing; Public witness testifying via satellite from Springfield, Ill.

FOREWORD

United States Senate

COMMITTEE ON COMMERCE, SCIENCE,
AND TRANSPORTATION

WASHINGTON, D.C. 20510

"On Wednesday [June 8, 1977] the Subcommittee on Science, Technology and Space conducted a legislative hearing by means of the Communications Technology Satellite (CTS), the public service communications research satellite operated jointly by the United States and Canada. . . . The witnesses who testified on S. 421, a bill to establish a national climate program, were located in the Federal courthouse in Springfield, Ill. They communicated with the subcommittee members in the Dirksen Office Building through a two-way video and audio [satellite television] circuit.

"I can report that the experiment was successful. The subcommittee received testimony on climate and weather from three panels of witnesses. We were able to question the witnesses without difficulty. A useful hearing record was compiled on this important subject.

"The hearing held by this subcommittee using the CTS satellite demonstrated the future utility of this system. There is no question that an operational public service satellite communications system would extend the reach of Congress and other governmental bodies in useful ways. Hearings, question and answer sessions, and news conferences would be routine applications of this technology."

Sen. Adlai E. Stevenson, Chairman
Subcommittee on Science, Technology and Space
June 10, 1977, and February 6, 1978

"Mr. Chairman, I think it has been an extremely interesting and exciting morning, and certainly one that encourages me to think that these hearings [have been] very profitable and also very educational, not only for us, but to the people [in Springfield, Ill.] that have had the opportunity to join us [via satellite]."

Sen. Harrison H. Schmitt, Ranking Minority Member
Subcommittee on Science, Technology and Space
June 8, 1977

"I think I took part [several years ago] in one of the first trans-Atlantic debates via satellite. Our Secretary of State and I debated the Foreign Ministers of England and France. . . . And as you know, we used this [satellite] on an Indian reservation in Arizona very successfully, and I am a great believer in what you're doing. . . . So there is no question in my mind that this [use of satellite for climate and weather-related activities] offers probably the greatest step forward. We just have to get behind it and make it work."

Sen. Barry Goldwater, Member
Subcommittee on Science, Technology and Space
June 8, 1977

Congress of the United States

House of Representatives

Washington, D.C. 20515

"Videoconferencing by satellite opens up a whole new vista for congressional communications. We get letters from constituents and we send out newsletters and statements via press and radio-television, expressing our views. But communications between a congressman and his constituents must be a two-way street. The immediacy of this [videoconferencing] medium permits such a dialogue to take place in an atmosphere second only to face-to-face meetings.

"The memorable morning I spent at NASA [studio in Washington, D.C.] talking [via satellite] with students and county officials in Hoke County [North Carolina] convinced me of the great potential for videoconferencing. Committee hearings, "town meetings," press conferences, meetings with constituents and dozens of other congressional activities could take advantage of this space-age technology in a way that would increase the efficiency of the Congress and the legislative products we produce."

Rep. Charlie Rose, Chairman
Policy Group on Information and Computers
Committee on House Administration
February 6, 1978

"Congressional videoconferencing is an innovation whose time has come. By facilitating an open and honest dialogue between citizens and their Representatives in the U.S. Congress, there is no question in my mind that videoconferencing can strengthen the legislative process and encourage informed advocacy by individuals and groups whose own time and effort schedules would make such advocacy difficult."

Rep. Paul N. McCloskey
February 3, 1978

"Videoconferencing is an exciting new project with excellent opportunity for helping to meet the needs of constituents [for] participation. . . . I am encouraged that as videoconferencing moves toward realizing its full potential, the concept will become widely familiar and used. It could be an excellent means for meeting with representatives of groups or cross-sections of the community and could only benefit both [political] parties."

Rep. Don Edwards
February 9, 1978

"I believe [videoconferencing] could be a useful means for Members of Congress to increase the dialogue with those they represent. . . . People in general are concerned about their government and anxious to participate in it. Your project seems to provide one means for doing so."

Rep. Joseph L. Fisher
February 6, 1978

DEDICATION

This report is dedicated to two members of the U.S. Senate who over the years have been leaders in working for an open Congress and the use of modern communication methods in bringing Congress closer to the people.



Hubert H. Humphrey (1911-1978)

"Any nation is in trouble when its citizenry feels alienated from its government and suspicious of it; but this is by far a worse disease when it afflicts a democracy.

"There are some justifications for this lack of esteem for public officials. . . . But one of the reasons is popular ignorance of what government is and how it functions. That condition as a basis of the public's judgment of us is not acceptable, and its results are not justified. We must

act to overcome it, to the extent we are able.

"I believe that the measures I have proposed (such as opening the Senate and House floors to radio and TV coverage, opening committee and subcommittee activities to news media coverage, use of a modern information and communications system within Congress to assist members in performing their work) would go far toward fulfilling our duty.

"I believe that an open Congress would be a Congress understood and respected."

—February 20, 1974

Lee Metcalf (1911-1978)

"For too many years the Federal government has been seen to be remote, unresponsive, insulated and untrustworthy. All of us sense the feeling of distrust whenever we are able to return to our home states, visits which have become more and more infrequent over the years as congressional sessions have steadily lengthened and the workload has continued to expand.

"In these circumstances, there are compelling reasons for us to be looking for new ways of relating the work of the Congress to the people, for bringing more citizens into our hearings as participants, for listening to voices other than those of the professional witnesses we tend to hear year after year in the development of legislation.

"I believe these experimental demonstrations of congressional videoconferencing open the prospect for a new era in representative democracy. I hope all Senators and Representatives and the public at large will consider the implications of this important experiment and encourage further exploration of methods of improving the exchange of information and ideas between the U.S. Congress and the American people whom it serves."

—June 10, 1977

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Sen. Adlai E. Stevenson

Sen. Harrison Schmitt



Sen. Barry Goldwater



Panel of public witnesses testifying via satellite from Springfield, Ill.
before the Senate Subcommittee on Science, Technology & Space

ABSTRACT

The purpose of this action research was to evaluate—through actual demonstrations—whether satellite videoconferencing can provide a new mechanism for informed dialogue between congressmen and constituents and as a result strengthen the legislative process.

What is satellite videoconferencing? (Page 9) Two-way interactive television with the TV signals transmitted by satellite. With videoconferencing, one or more congressmen in Washington, D.C. can see and hear and talk with groups of citizens at distant locations around the country. Simultaneously, the citizens can see and hear and talk with the congressmen.

Does satellite videoconferencing work? (Page 9) Yes. This experiment proved that videoconferencing is technically feasible. Four demonstrations were successfully completed: Q&A session between Rep. Charlie Rose and high school students in Raeford, N.C.; meeting between Rose and local public officials; hearing of the Senate Subcommittee on Science, Technology & Space (Senators Stevenson, Schmitt, Goldwater, Pearson) with public witnesses in Springfield, Ill.; and meeting between Rep. Pete McCloskey and constituents in California.

Are videoconferences useful? (Page 18) Yes. Participants in the four demonstrations found that satellite videoconferencing helps congressmen reach more people more effectively, increases citizen participation and feedback, saves time and energy of congressmen and constituents, and stimulates citizen interest in and understanding of the legislative process.

What will videoconferences cost? (Page 20) About \$300/hour in the 1980-1982 time frame for simple applications. For a typical congressional subcommittee or committee hearing, videoconferencing would be about three times cheaper than the cost of airfare, travel time, and per diem for the witnesses. The benefit/cost ratio of videoconferencing is about 3:1, and this does not include the subjective value placed on participation of citizens who would not otherwise have the time or money to come to Washington, D.C.

When will satellite videoconferencing be widely available? (Page 25) 1980-1982, if Congress takes action now to ensure that public and congressional needs for videoconferencing are met. Of critical importance is the requirement for low-cost, small earth terminals which can be located on or near public buildings throughout the country and for mobile terminals which can be located in small towns and rural areas which do not need permanent facilities.

What should Congress do to ensure an operational videoconferencing system by 1980-1982? (Page 26) Redirect U.S. preparation for WARC, request assessments by OTA and Commerce Department, conduct full hearings (e.g., by Communications and Science and Technology Subcommittees), consider need for legislation and administrative and/or regulatory actions.

What should Congress do in the interim? (Page 26) Assign overall responsibility for congressional applications to appropriate committees (e.g., Senate Rules and Administration, House Administration, House Rules), authorize comprehensive demand/cost analysis, move ahead with applications using existing NASA, commercial, Bell/AT&T, cable TV, and Public Broadcasting satellite systems. Explore possible multipurpose use of satellite systems for voice, data, graphics, and slow-scan videoconferencing in addition to full two-way video. Explore possible satellite transmission of floor/committee proceedings and legislative information to Public TV stations, public schools and libraries, and the like.



Congressman Rose in Washington, D.C.



Portable Earth Terminal (PET)
in Raeford, North Carolina



Panel of students at Hoke County High School, Raeford, N.C.,
meeting via satellite with Rep. Charlie Rose

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SUMMARY

Close to the heart of the American political system is the process of communication between citizens and their elected representatives. At the congressional level, telecommunications technologies—like the telephone and broadcast television—already play a significant role. But the job of the congressman continues to get more demanding. Citizen needs for direct participation in the legislative process get stronger. And the problems congressmen and the public must deal with get more and more complex.

At the same time, American society is well into the so-called "Communications Revolution," a period when many of the major new tools of society are communications technologies like the computer and satellite.

The purpose of this research was to evaluate—through actual demonstrations—whether satellite videoconferencing, one particularly important new technology, can provide a new mechanism for informed dialogue between congressmen and constituents and as a result strengthen the legislative process in ways which are consistent with our representative democracy.

What is Videoconferencing Via Satellite?

Videoconferencing can be described as two-way television. With videoconferencing, one or more congressmen in Washington, D.C. can see and hear and talk with small or large groups of citizens at distant locations around the country. Simultaneously, the citizens can see and hear and talk with the congressmen.

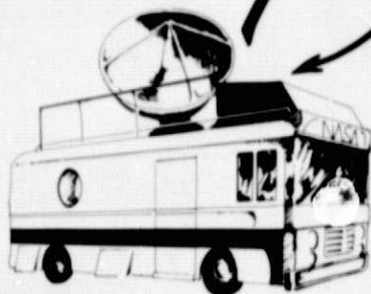
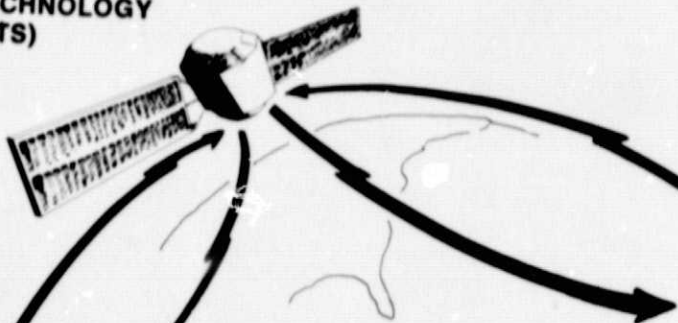
Satellite videoconferencing is two-way interactive television with the TV signals sent up to a satellite and back down, as illustrated in Figure 1. For meetings with citizens from cities or towns more than a few hundred miles from Washington, D.C., or with people from rural areas, the use of a satellite can make videoconferencing cost-effective.

Does Satellite Videoconferencing Work?

The first question congressmen and staff usually ask about satellite videoconferencing is: Will it work? The answer is yes. If this experiment proved nothing else, it proved that satellite videoconferencing is technically feasible.

Four demonstrations were successfully completed:

COMMUNICATIONS TECHNOLOGY SATELLITE (CTS)



PORTABLE EARTH TERMINAL (PET)

HOKE COUNTY HIGH SCHOOL
RAEFORD, NORTH CAROLINA

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STUDENT PANEL



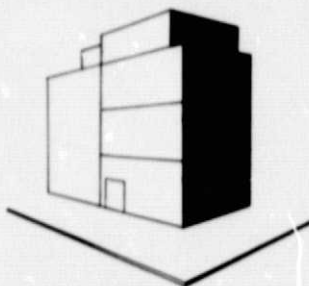
AUDIENCE



NASA-GODDARD
EARTH TERMINAL
GREENBELT, MD.



NASA-HQ STUDIO
WASHINGTON, D.C.

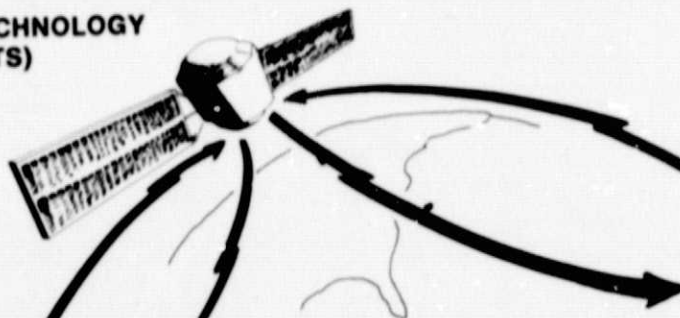


CONGRESSMAN CHARLIE ROSE

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Figure 1.

APRIL 15, 1977, VIDEOCONFERENCE BETWEEN
REP. CHARLIE ROSE IN WASHINGTON, D.C.,
AND HOKE COUNTY HIGH SCHOOL STUDENTS
IN RAEFORD, NORTH CAROLINA

**COMMUNICATIONS TECHNOLOGY
SATELLITE (CTS)**



PORTABLE EARTH TERMINAL (PET)

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**HOKE COUNTY HIGH SCHOOL
RAEFORD, NORTH CAROLINA**

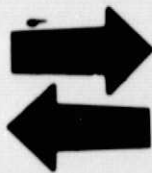


CITY AND COUNTY PUBLIC OFFICIALS

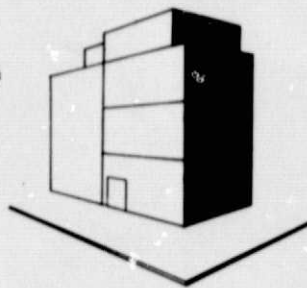


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NASA-GODDARD
EARTH TERMINAL
GREENBELT, MD.



NASA-HQ STUDIO
WASHINGTON, D.C.



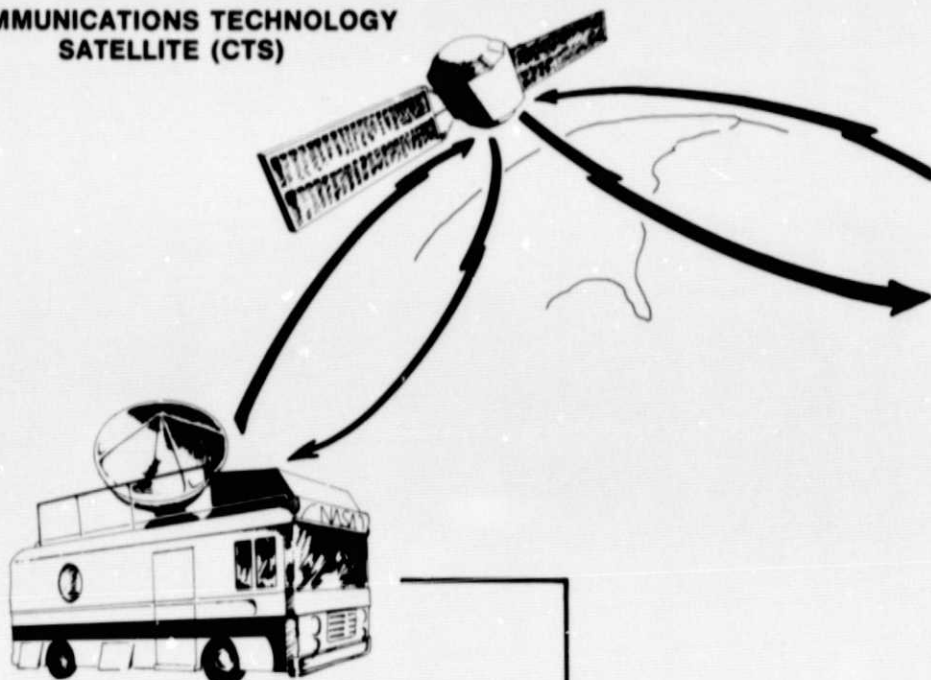
CONGRESSMAN CHARLIE ROSE

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Figure 2.

APRIL 15, 1977, VIDEOCONFERENCE BETWEEN
REP. CHARLIE ROSE IN WASHINGTON, D.C.,
AND HOKE COUNTY PUBLIC OFFICIALS
IN RAEFORD, NORTH CAROLINA

**COMMUNICATIONS TECHNOLOGY
SATELLITE (CTS)**



PORTABLE EARTH TERMINAL (PET)

**FEDERAL COURTHOUSE
SPRINGFIELD, ILL.**



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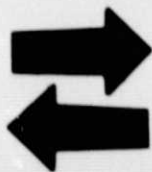
PUBLIC WITNESSES TESTIFYING ON S.421



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NASA-GODDARD
EARTH TERMINAL
GREENBELT, MD.

DIRKSEN SENATE
OFFICE BUILDING
WASHINGTON, D.C.

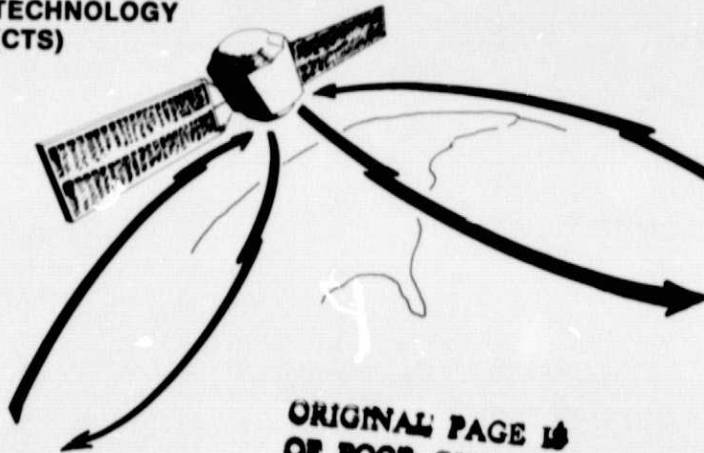


SUBCOMMITTEE ON SCIENCE, TECHNOLOGY & SPACE
SENATORS PEARSON, GOLDWATER, SCHMITT, STEVENSON (l. to r.)

Figure 3.

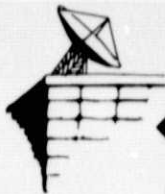
JUNE 8, 1977, VIDEOCONFERENCE BETWEEN
SENATE SUBCOMMITTEE IN WASHINGTON, D.C.,
AND THREE PANELS OF PUBLIC WITNESSES
IN SPRINGFIELD, ILLINOIS

**COMMUNICATIONS TECHNOLOGY
SATELLITE (CTS)**

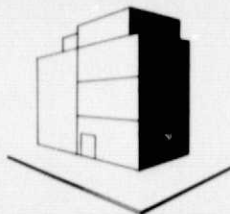
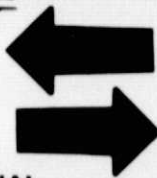


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**NASA-AMES STUDIO
MOFFETT FIELD, CA.**



EARTH TERMINAL



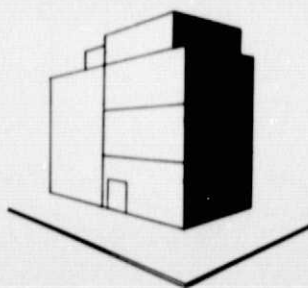
PANEL OF CLINICAL PSYCHOLOGISTS



**NASA-GODDARD
EARTH TERMINAL
GREENBELT, MD.**



**NASA-HQ STUDIO
WASHINGTON, D.C.**



CONGRESSMAN PETE McCLOSKEY

Figure 4.

JULY 26, 1977, VIDEOCONFERENCE BETWEEN
REP. PETE McCLOSKEY IN WASHINGTON, D.C.,
AND CLINICAL PSYCHOLOGISTS FROM SANTA
CLARA AND SAN MATEO COUNTIES, CALIF.

- A question-and-answer session between Rep. Charlie Rose in Washington, D.C. and high school students in Raeford, North Carolina (see Figure 1).
- A meeting between Congressman Rose and Hoke County public officials to discuss the energy program and other pending federal actions of local concern (see Figure 2).
- A hearing of the Senate Subcommittee on Science, Technology and Space with Senators Adlai E. Stevenson, Harrison Schmitt, James B. Pearson, and Barry Goldwater in Washington, D.C. and public witnesses in Springfield, Ill., to give testimony on S.421 (see Figure 3).
- A meeting between Rep. Paul N. "Pete" McCloskey in Washington, D.C. and a group of psychologists in California to discuss H.R.2270 (see Figure 4).

All demonstrations used NASA's Communications Technology Satellite (CTS). The Rose and Stevenson demonstrations also used NASA's Portable Earth Terminal (PET), which makes videoconferencing accessible to just about anyone anywhere, especially citizens from smaller towns and rural areas.

Are Videoconferences Useful?

A second question, and one to which this study gave major attention, is whether or not satellite videoconferencing can be useful to congressmen and constituents. The answer again is yes, for the following reasons:

- **Reach more people more effectively.** In all four videoconferences, the congressmen had an opportunity to meet with people who would not otherwise have been able to fit into their congressional schedules. In all cases, the communication between congressmen and constituents was felt to be just as effective as meeting in person.
- **Increase citizen participation and feedback.** Videoconferences encourage meaningful dialogue between citizens and their elected representatives. The two-way interactive nature of the medium facilitates an open exchange of views and an honest, forthright approach to questions and answers—for both congressmen and constituents. It can be fairly said, in these four demonstrations, that citizen participation was meaningful and not a put-on.

Perhaps most important, videoconferencing helps open up the legislative process to people who cannot afford the time or money to travel to Washington, D.C.

- **Save time and energy.** The demonstrations provided evidence that videoconferencing can save the time of the participants, both

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Rep. Paul N. "Pete" McCloskey in Washington, D.C.



Panel of clinical psychologists in California
meeting via satellite with Congressman McCloskey

through the reduction or elimination of travel and by the reduction of meeting time due to more focused and better prepared participation. Videoconferencing can also conserve the personal energy (fatigue factor) of participants and the physical energy that would have been expended on travel.

- **Citizen interest and understanding.** The results of the demonstrations do not support the claim that most people would lack interest in participating in videoconferences with their congressmen and would have inadequate understanding of the issues to engage in meaningful conversations. To the contrary, the videoconferences stimulated interest. Constituents were eager to meet with their elected representatives and had at least enough understanding of current affairs to hold their own.
- **Person to-person contact.** The evidence from the demonstrations is that videoconferencing is very much a humanized use of communications technology. Two-way, face-to-face, live, interactive discussion over a videoconference is exactly what happens when people meet in person. The participants adjusted to the videoconference format within minutes (or sooner) and felt almost as if they were in the same room with each other.
- **Scheduling.** Scheduling constraints were perhaps the major barrier to setting up the videoconferencing demonstrations, due to the shortage of CTS satellite time and limited availability of the mobile terminal (PET). Both satellite and terminal time should be more readily available in an operational system.
- **Possible abuse and overuse.** Concern that videoconferencing might be used by congressmen to manipulate or stage-manage discussions seems unfounded. In all cases, citizens with little or no media experience were able to adapt quickly to the videoconference and participate in an even-handed dialogue with the congressmen, two of whom (Rose and McCloskey) are well-known for their media skills.

All four of the videoconferences were advantageous to the congressional participants in terms of the favorable exposure to their constituents and the good press coverage via newspaper and television. This possible advantage to incumbents would be expected to wear off as videoconferences become more commonplace, and can perhaps be minimized if congressional videoconferencing is used primarily for legislative activities (e.g., committee and subcommittee hearings), and if the Congress is only one of many public users of a satellite videoconferencing system.

What Will Videoconferences Cost?

The third question congressmen and staff frequently ask is: What will it cost?

Figure 5.

ESTIMATED COST OF SATELLITE VIDEOCONFERENCING (1980-1982) FOR TYPICAL CONGRESSIONAL ACTIVITIES

The basic cost of satellite videoconferencing includes:

\$50/hour	Use of earth terminal/TV studio in Washington, D.C.
+ \$50/hour	Use of earth terminal/TV studio at one field location. (Each additional location costs another \$50/hour.)
+ \$200/hour	Use of a satellite for two-way video transmission between Washington, D.C. and one field location. (Each additional location costs another \$100/hour.)
= \$300/hour for satellite videoconferencing	Basic estimated cost

For typical congressional applications, the cost would be:

SUBCOMMITTEE HEARING (two hour hearing, four witnesses at one field location, e.g., Denver)	
\$100	= \$50/hr × 2 hrs for earth terminal/TV studio in Washington, D.C.
+ \$100	= \$50/hr × 2 hrs for terminal/TV studio in Denver
+ \$400	= \$200/hr × 2 hrs for satellite transmission
= \$600	Total estimated cost

COMMITTEE HEARING

(three hour hearing, panels of four witnesses at three field locations, e.g., San Francisco, Denver, Boston)

\$150

= \$50/hr × 3 hrs for terminal/studio in Washington, D.C.

+ \$450

= \$50/hr × 3 hrs × 3 locations for terminal/studio in San Francisco, Denver, Boston

+ \$1200

= \$400/hr × 3 hrs for satellite

= \$1800

Total estimated cost

STAFF INVESTIGATIVE/OVERSIGHT MEETING

(two-hour meeting, ten people at one field location, e.g., Raton, N.M.)

\$100

= \$50/hr × 2 hrs for terminal/studio in Washington, D.C.

+ \$100

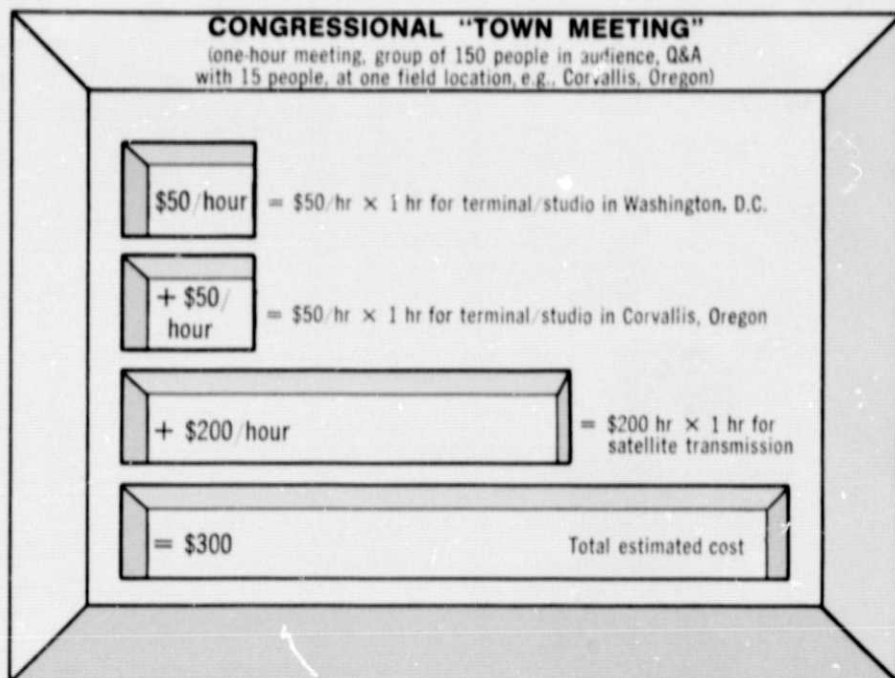
= \$50/hr × 2 hrs for mobile terminal/studio in Raton, N.M.

+ \$400

= \$200/hr × 2 hrs for satellite transmission

= \$600

Total estimated cost



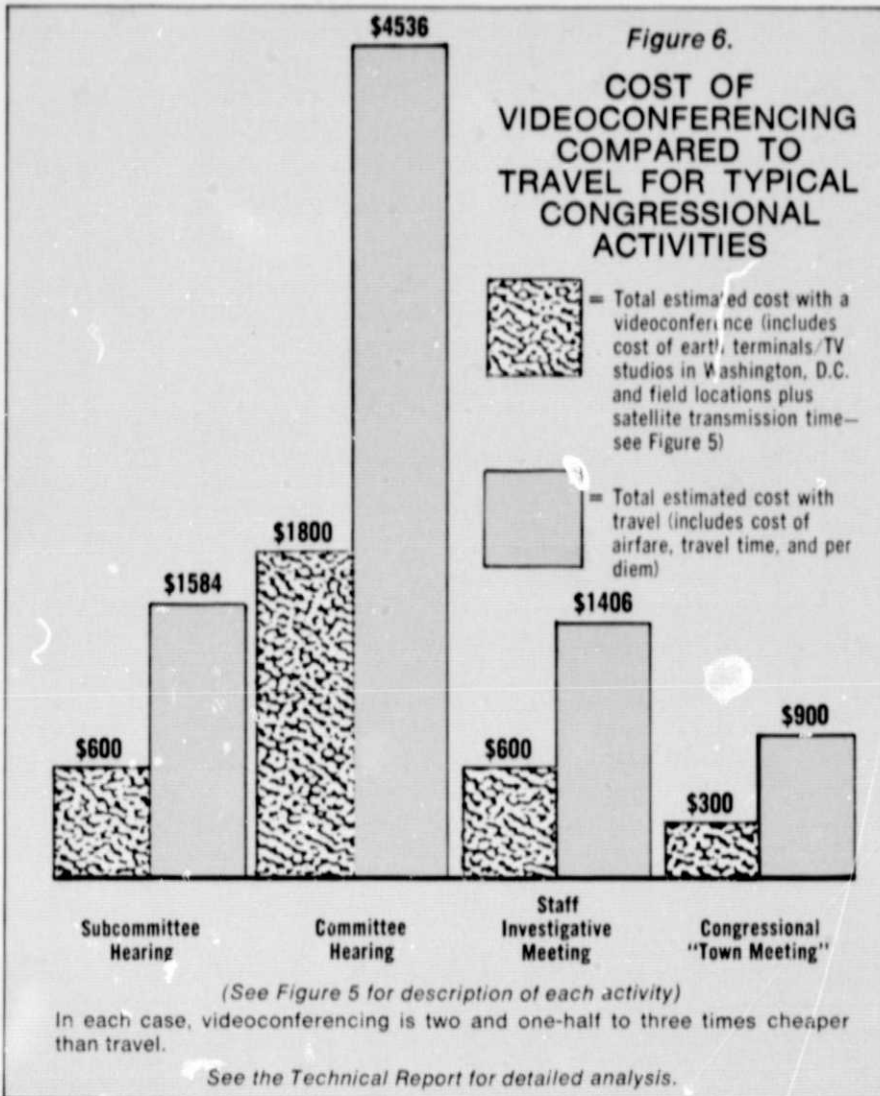
See the Technical Report for detailed analysis.

Whatever the benefits of congressional videoconferencing, they have to be weighed against the financial costs of using the system. The actual costs will depend largely on the type of operational satellite videoconferencing system which evolves in the U.S. over the next 2-4 years.

Under a reasonable set of assumptions (detailed in the Technical Report), the basic estimated cost for congressional videoconferencing in the 1980-1982 time frame would be about \$300/hour for simple applications between Washington, D.C. and one field location. Additional locations entail extra costs. (See Figure 5.)

Within the framework set out in the full analysis, the benefit/cost ratio for four typical applications would be as follows (see Figure 6):

- Congressional subcommittee hearing (four witnesses at one field location, e.g., Denver): cost \$600; direct savings (air fare, travel time, per diem) of \$1584 for a benefit/cost ratio of about 2.5:1.
- Full congressional committee hearing (panels of four people at three field locations, e.g., San Francisco, Denver, Boston): cost \$1800; direct savings of \$4536 for a benefit/cost ratio of about 2.5:1.
- Congressional staff oversight/investigative meeting (ten people at one field location, e.g., Raton, N.M.): cost \$600; direct savings of \$1406 for a benefit/cost ratio of about 2.5:1.



- Congressional "town meeting" (group of 150 people, Q&A with 15, at one field location, e.g., Corvallis, Oregon): cost \$300; direct savings of \$900 for a benefit/cost ratio of 3:1.

Realistically, many citizens would not have the time or money to come to Washington to testify at a congressional hearing or participate in a staff inquiry. So with videoconferencing, we are talking about constituent communication which would not otherwise occur. The subjective value to the congressmen and constituents may be far in excess of the dollar savings figure.

Indeed, these benefit/cost ratios are limited to factors which can be expressed in dollars and therefore probably understate the benefit side. A total benefit figure should reflect the subjective value of reaching more people more effectively, increasing citizen feedback and participation, minimizing the disruption and fatigue caused by travel, and the like.

When Will Satellite Videoconferencing Be Widely Available?

Videoconferencing capability can be widely available in the 1980-1982 time frame, if the Congress takes action now to ensure that public and congressional needs for videoconferencing are recognized and met.

At present (early 1978), true satellite videoconferencing is available only on an experimental basis using NASA's CTS system, as was done for the demonstrations reported here. Current commercial satellite systems can accommodate videoconferencing, but at high cost. The satellite time itself is quite cheap (e.g., \$230/hour for two-way video time in the morning hours). However, the landline interconnect (from the earth terminal to the user) and related charges can be exorbitant. In addition, commercial systems operate primarily in the large metropolitan areas and do not provide the mobile or portable earth terminal service (like NASA's PET) for smaller towns and rural areas.

The most likely—and perhaps only—way that the Congress will have access to videoconferencing on a regular basis will be by purchasing time on an operational system developed for commercial and/or public service use. The requirements of an operational system suitable for use by the Congress and other public service users (e.g., educational, health, and community groups; federal, state, and local government agencies) include:

- low-cost earth terminals and satellite time,
- low-cost videoconferencing studios, and
- low-cost video origination and interconnect capability.

Low-cost videoconferencing studios are possible now. And for the Congress, much of the necessary video origination and interconnect capability already exists or is under construction as part of the communications support for regular House/Senate operations, such as the closed-circuit televising of committee and floor activities.

The major uncertainty in the development of an operational videoconferencing system—whether for congressional or many other public service uses—is the availability of low-cost satellite earth terminals. Of critical importance is the requirement for low-cost, small earth terminals which can be located on or near public buildings throughout the country (thus eliminating the need for expensive landline interconnection and minimizing frequency interference problems) and mobile terminals which can be located in small towns and rural areas which do not need permanent facilities.

What Should the Congress Do Now to Ensure An Operational Videoconferencing System by 1980-1982?

Congress must act now, in order to ensure that operational satellite systems of the early 1980s will meet public and congressional needs for videoconferencing.

Recognizing the urgency and priority of the issues at stake, the Congress in concert with the President should:

- Require that U.S. preparation for the 1979 WARC (the World Administrative Radio Conference, which allocates frequencies for satellite and other use) give full consideration to public service needs and take no action or position which would foreclose public service videoconferencing options.
- Request that the U.S. Office of Technology Assessment and the U.S. Department of Commerce (Assistant Secretary for Telecommunications and Information) conduct, for the Congress and the President respectively, a comprehensive policy and technology assessment of public service satellite communications.
- The assessments should consider the following satellite videoconferencing options:
 - Bell System videoconferencing service
 - Specialized common carriers
 - Public Broadcasting System with public service videoconferencing capability
 - Domestic satellite common carriers (including a hybrid C-Ku band satellite option)
 - Advanced NASA-CTS satellite for Ku-band multibeam public service experiments
 - Public service communications satellite (including the Syncom IV "gapsat")
- With the results of these assessments before them, the Science and Technology and Communications Subcommittees of the House and Senate should conduct full hearings on the future of public service satellite communications.
- The Congress and the White House Domestic Policy Staff and Office of Science and Technology Policy should consider the need for amendments to the Communications Act of 1934 and other public laws, new legislation, and/or administrative or regulatory actions to protect the public interest in satellite communications.

What Should Congress Do in the Interim?

The Congress can move ahead right now with some applications of satellite technology, even though a fully operational videoconferencing system cannot be expected until the early 1980s.

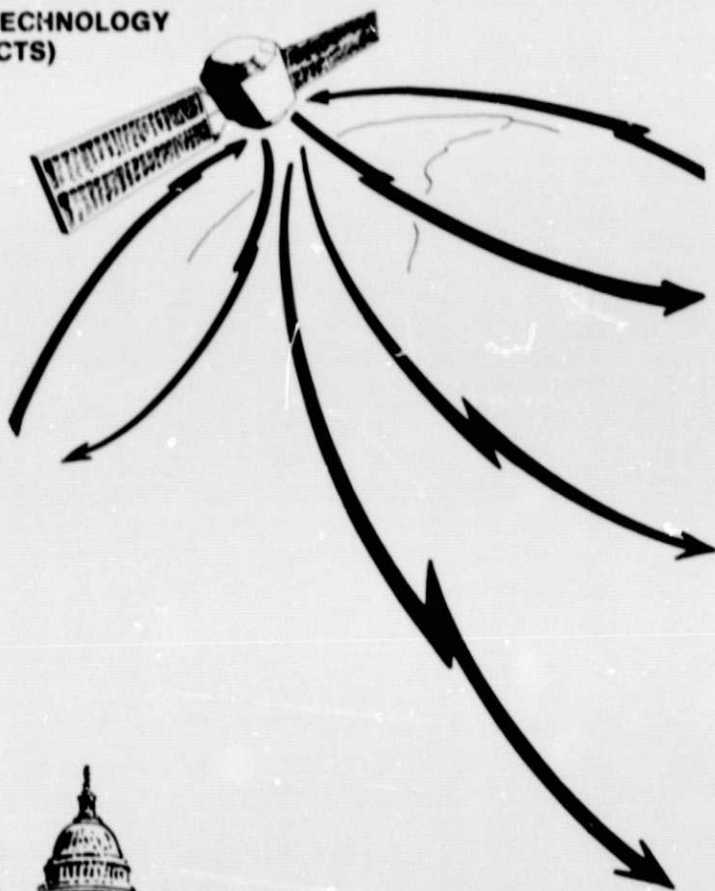
A first step should be to assign overall responsibility for congressional satellite applications to the appropriate committees of Congress, and then to authorize—perhaps by Joint Resolution—a comprehensive demand/cost analysis of videoconferencing and related needs.

- The analysis should include a survey of all committees and congressional support offices, plus a sample of individual members, and could logically be conducted under the direction of the House Administration, House Rules, House Select Congressional Operations, and Senate Rules and Administration Committees.

The following applications are possible right now through the means indicated, some at relatively low cost. Figure 7 illustrates several possible applications.

- Conduct of committee or subcommittee hearings with public witnesses at one or more field locations.
 - Use of the NASA CTS system for additional videoconferencing demonstrations (especially for smaller towns and rural areas).
 - Use of commercial satellite systems for videoconferencing demonstrations between major metropolitan areas.
 - Use of the Public Broadcasting System satellite interconnect system for videoconferencing demonstrations.
- Conduct of committee staff-level meetings and conferences with some participants at a distant location.
 - Use of Bell System videoconferencing service between two major cities (e.g., \$390/hour for Washington, D.C.-San Francisco).
 - Use of commercial computer-conferencing network between multiple locations around the U.S. (e.g., \$17/hour plus \$25/month for the computer use and \$90/month per terminal).
- Conduct of staff-level meetings of congressional support offices, e.g., Congressional Research Service and Office of Technology Assessment, in seeking views of experts and laypersons outside of Washington, D.C. and for presentation of results to congressional staff.
 - Use of Bell System videoconferencing, as above.
 - Use of commercial computer-conferencing network, as above.
 - Use of commercial multipurpose teleconferencing network with voice, data, facsimile, graphics, and perhaps slow-scan video capability.
- Transmission of closed-circuit television coverage of House/Senate floor proceedings to remote locations around the country.
 - Use of the Public Broadcasting satellite interconnect system to distribute proceedings to Public TV stations for discretionary

**COMMUNICATIONS TECHNOLOGY
SATELLITE (CTS)**



**U.S. CONGRESS IN
WASHINGTON, D.C.**



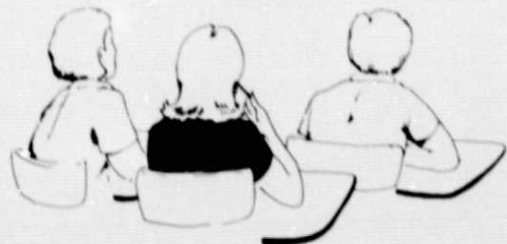
HOUSE/SENATE

**Floor Activity
Committee Hearings
Subcommittee Hearings
Staff-level Meetings
Constituent Meetings**

**CITIZEN PARTICIPATION
FROM PUBLIC BUILDINGS**



**STUDENT EDUCATION
IN PUBLIC SCHOOLS**



**CITIZEN EDUCATION
ON TV IN THE HOME**

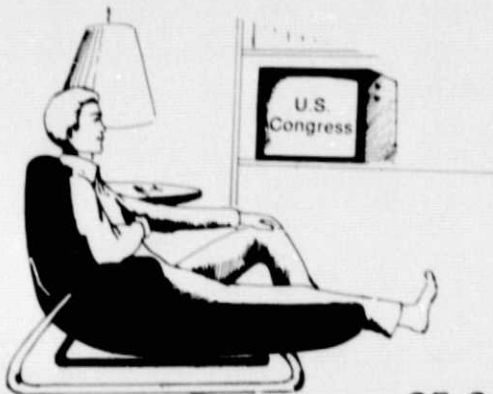


Figure 7.

**POSSIBLE APPLICATIONS
OF SATELLITE VIDEOCONFERENCING**

programming. (PBS will have 150 earth terminals serving 63 Public TV stations by the end of 1978.)

- Use of commercial satellite systems to distribute proceedings to local cable TV stations for discretionary programming. (Close to 200 cable TV stations have satellite earth terminals installed or under construction.)
- Transmission of closed-circuit coverage of committee/subcommittee proceedings to remote locations around the country.
 - Use of Public Broadcasting satellite interconnect, as above.
 - Use of commercial satellite cable TV interconnect, as above.
- Distribution of legislative information to congressional district and state offices, public schools and libraries, and local/state governments around the country.
 - Use of commercial computer-conferencing network, as above.
 - Use of commercial multipurpose teleconferencing, as above.

In Sum: Opening Congress to the People

Many of the congressmen participating in this (1977) study and in an earlier (1973-1974) interview survey have expressed the need for videoconferencing and other emergent telecommunication channels to help them meet their public responsibilities. Faced with increased complexity in social problems and the volume and diversity of citizen demands, videoconferencing can help the Congress do a better job representing the people and legislating on their behalf.

From the perspective of the public participants in the 1977 experiment, videoconferencing can open up new possibilities for learning about the Congress, for acquiring more relevant information about (and participating in) the legislative process and specific issues, and for communicating views and opinions to Congress on a more timely and informed basis.

Excerpts from a Springfield, Ill., newspaper article provide a concluding perspective on congressional videoconferencing:

"WASHINGTON—Sen. Adlai E. Stevenson's subcommittee on science, technology and space Wednesday pioneered an experiment in good government and satellite communication which could become the commonplace of tomorrow.

"It may take time to sort out the implications of the two-way test of television signals relayed between the senators sitting in a Dirksen Senate Office Building hearing room and witnesses testifying in a Springfield federal courtroom, but the potential seems obvious.

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*Senators Goldwater and Pearson in Washington, D.C.;
Public witness testifying via satellite
from Springfield, Ill.*

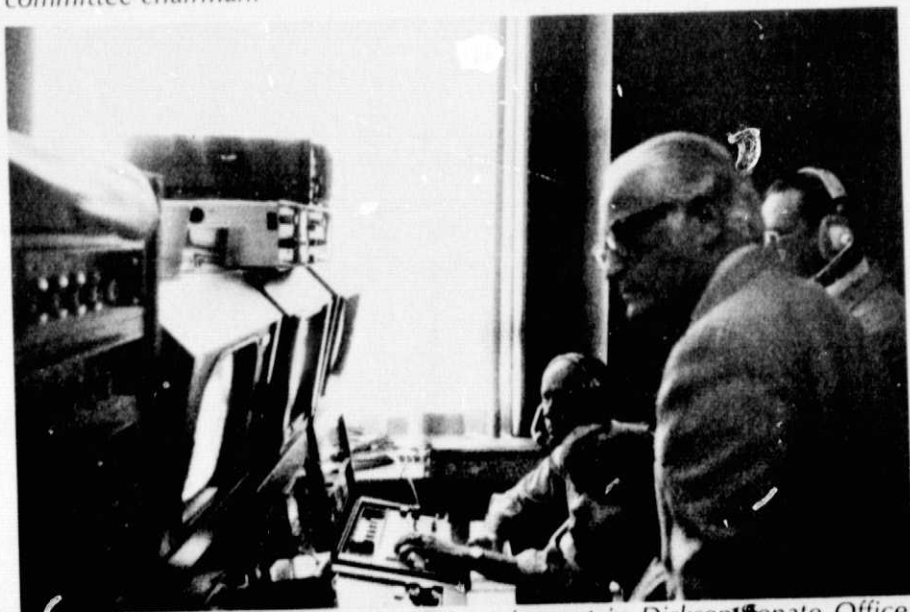
"The three panels of witnesses soon adjusted to the camera and addressed it as directly as if they were sitting at the witness table in Washington speaking to the senators. The effect on the hearing room [audience] was as if the proceeding was taking place right here.

"This new way to hold a hearing, in short, seems so natural, it's a wonder it hasn't been used long before."

Lester Bell
State Journal-Register
June 9, 1977



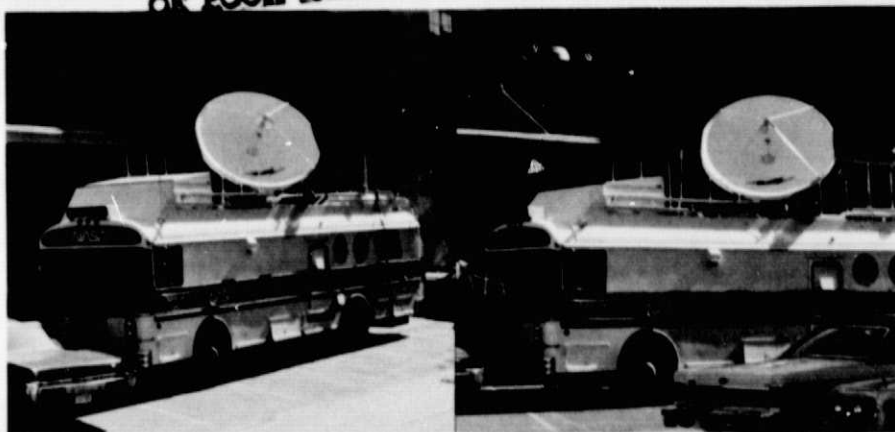
Above: Senate Subcommittee on Science, Technology and Space in Washington, D.C.; public witnesses testifying on TV via satellite from Springfield, Ill.; seated at the curved dias (l. to r.) are Senators James B. Pearson, Barry Goldwater, Harrison H. Schmitt, and Adlai E. Stevenson, the subcommittee chairman.



Sen. Barry Goldwater inspecting TV equipment in Dirksen Senate Office Bldg., Washington, D.C.

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Portable Earth Terminal in Springfield, Ill.



Public witnesses in Springfield, Ill.; Sen. Harrison Schmitt on TV via satellite from Washington, D.C.



Panel of public witnesses in Federal Courthouse, Springfield, Ill.

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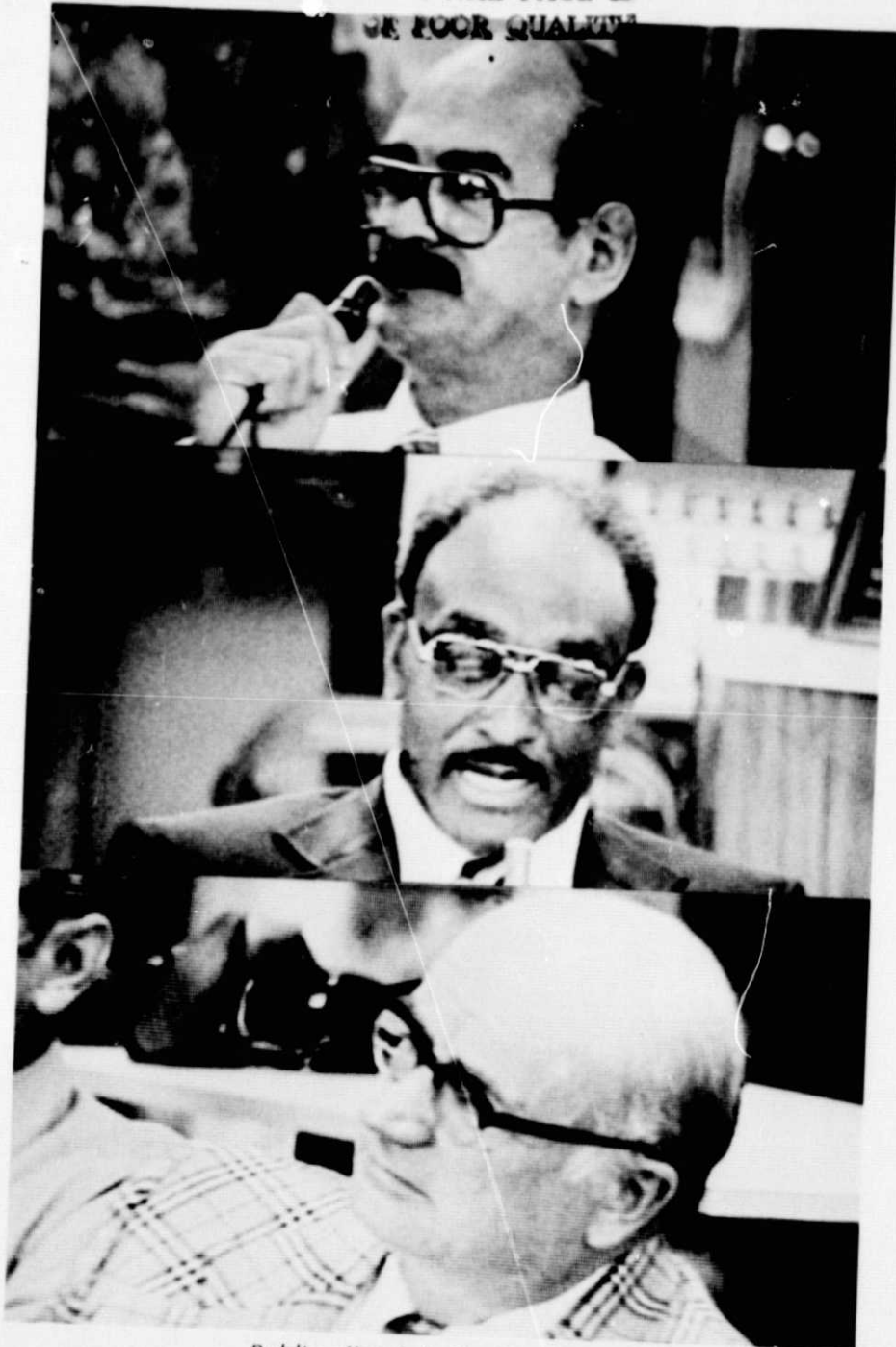
Rep. Charlie Rose in Washington, D.C.



*Panel of public officials in Raeford, N.C.,
meeting via satellite with Congressman Rose*

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Public officials in Raeford, N.C.

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Hoke County high school students in Raeford, N. C., meeting via satellite with Congressman Rose

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